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Organizational Stressors, Social Support, and Implications for Subjective Performance
in High-Level Sport

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Abstract

Objectives: Although much is now known about the role of social support in the competitive stress process, scholars have yet to examine this moderator in relation to organizational stress. The purpose of this study was to examine the relationship between perceived organizational stressors and subjective performance in sport, with particular focus on the potential moderating role of social support.

Design and Methods: Talented athletes ($N = 122$; 60 male; $M_{age} = 20.50$) completed questionnaires of perceived organizational stressors, social support, and subjective athletic performance.

Results: In addition to evidence of main effects, analyses revealed four significant interactions which demonstrated that social support did act as a significant moderator of the relationship between organizational stressors and subjective performance. Contrary to the extant literature, however, the findings illustrated reverse buffering. Associations suggest that some dimensions of social support exacerbated rather than mitigated athletes' stress reactions (i.e. impaired performance) when encountering greater frequencies of organizational stressors.

Conclusion: These findings not only advance theoretical understanding of the organizational stress process, but also present a number of significant implications for athletes, coaches, and applied practitioners aiming to enhance performance in pressurized and demanding situations. Specifically, recommendations are forwarded for practitioners to address coaching stressors and provide effective social support that is matched to the stressors that he or she encounters.

Keywords: athletic, demand, interaction, moderation, strain, stressor

Organizational Stressors, Social Support, and Implications for Subjective Performance in High-Level Sport

In elite sport, athletes are often required to perform while encountering various competitive pressures. Increasingly, however, research is demonstrating that organizational stressors can not only be a prevalent and problematic type of demand for various sport performers (see e.g., Arnold, Fletcher, & Daniels, 2016; Arnold, Wagstaff, Steadman, & Pratt, 2017), but can also be encountered more than competitive demands (Fletcher & Arnold, 2017; Hanton, Fletcher, & Coughlan, 2005). Organizational stressors have been defined as “the environmental demands associated primarily and directly with the organization within which an individual is operating” (Fletcher, Hanton, & Mellalieu, 2006, p. 329). In terms of their prevalence, Arnold and Fletcher (2012) synthesized 34 studies that had identified the organizational stressors encountered by sport performers to find 640 distinct demands. These were organized to form four categories of organizational stressors: leadership and personnel issues (e.g., the coach’s behaviors and interactions, expectations, media), cultural and team issues (e.g., the team atmosphere, roles, goals), logistical and environmental issues (e.g., facilities, selection, travel), and performance and personal issues (e.g., injuries, finances, career transitions). If organizational stressors remain unaddressed, research has suggested that they can be associated with negative affect and poor well-being (Arnold, Fletcher, & Daniels, 2017; Fletcher, Hanton, & Wagstaff, 2012), overtraining (Meehan, Bull, Wood, & James, 2004), burnout (Larner, Wagstaff, Thelwell, & Corbett, 2017; Tabei, Fletcher, & Goodger, 2012; Wagstaff, Hings, Larner, & Fletcher, 2018), and impaired preparation for and performance at sporting competitions (Didymus & Fletcher, 2017b; Gould, Guinan, Greenleaf, Medbery, & Peterson, 1999).

One model that can be used to explain the relationship between organizational stressors and key outcomes in sport is the meta-model of stress, emotions, and performance (Fletcher & Arnold, 2017; Fletcher & Fletcher, 2005; Fletcher et al., 2006; Fletcher & Scott,

2010). This model was adopted to underpin the present study because of three main reasons (Fletcher et al., 2006): a) it offers a supraordinate and integrative perspective of stress and its relationship with performance, b) it is consistent with existing theoretical work in the area, and c) it has been designed to accommodate organizational stressors. The model suggests that environmental stressors are mediated by certain processes (e.g., perception, appraisal, coping), and, as a consequence, can result in various outcomes (e.g., suboptimal well-being and/or performance). Additionally, the model posits that various personal and situational characteristics can moderate the transactional stress process (Fletcher et al., 2006). Example personal characteristics might include hardiness, self-confidence, and neuroticism; whilst example situational characteristics might include the degree of available autonomy or control (Fletcher et al., 2006).

Although there are an abundance of moderators that could be examined, one situational characteristic that has received attention in relation to the competitive stress process is social support. This is an important variable to measure in sport psychology research, given its identified benefits for group cohesion (Westre & Weiss, 1991; see also, Al-Yaaribi & Kavussanu, 2016), self-confidence (Freeman & Rees, 2010; see also, Beaumont, Maynard, & Butt, 2015), performance (Freeman & Rees, 2009; Rees, Ingledew, & Hardy, 1999; Tamminen, Sabiston, & Crocker, 2018), well-being (DeFreese & Smith, 2014), burnout and self-determined motivation (DeFreese & Smith, 2013), and coping with performance slumps and injury (Madden, Kirkby, & McDonald, 1989; Udry, 1996; see also, Mosewich, Crocker, & Kowalski, 2014), and competitive and personal stressors (Crocker, 1992; Rees & Hardy, 2000; see also Cosh & Tully, 2015). It is important to explore the role of social support in the organizational, as well as the competitive, stress process given the differential impacts that organizational stressors can have on athletes' experiences in sport. Specifically, Tamminen and colleagues (2018) found that more frequent coaching stressors weakened the association between esteem support and secondary appraisal, whereas more frequent team and culture

stressors strengthened the association. Furthermore, extensive research in the workplace has demonstrated the benefits of social support as a resource to help employees cope with occupational demands (Bakker & Demerouti, 2017). The construct of social support encompasses structural (i.e. support network), functional (i.e. support exchanges), and perceptual (i.e. support appraisal) aspects (Bianco & Eklund, 2001). Despite this, research in sport has typically focused on the functional element, which can be separated into perceived availability of support and support actually received (Freeman & Rees, 2010). The present study focuses on perceived support, because evidence suggests this aspect of support is more consistently related to key outcome variables, such as performance and self-confidence, than support actually received (Freeman & Rees, 2010; Rees & Hardy, 2004). There is consensus in the literature that perceived support may be separated into four main dimensions (Cutrona & Russell, 1990; Rees & Hardy, 2000). These are: emotional support (viz. others being present to provide comfort and security), esteem support (viz. others bolstering an individual's competence or self-esteem), informational support (viz. others providing advice or guidance), and tangible support (viz. others providing concrete instrumental advice) (Freeman & Rees, 2009).

Transactional stress theory suggests that social support can exert an impact on outcomes in two main ways (Cohen, 1988; Rees & Hardy, 2004). Firstly, in what is known as a *main effects model*, social support can have a direct impact on various outcomes. Research investigating the main effects model has produced fairly consistent findings in the sports context. Indeed, studies have demonstrated a link between social support and Olympic performance (Gould et al., 1999), performance factors in tennis (Rees & Hardy, 2004; Rees et al., 1996), and performance outcomes in golf (Rees & Freeman, 2009; Rees, Hardy, & Freeman, 2007).

Alternatively, social support can moderate the effect of stressors on outcomes, which is referred to as the *stress buffering hypothesis*. There have been a number of mechanisms

forwarded in the literature in an attempt to explain the protective, buffering influence of social support on the detrimental effects of stressful events. To elaborate, social support has been suggested to lead to a benign appraisal of the event, redefine the potential threat of a situation, enhance an individual's perceived situational control and ability to cope, directly provide resources, promote self-efficacy and better coping behaviours, and alter the affective, physiological, or behavioural response to stress (Cohen & Gottlieb, 2000; Freeman & Rees, 2009; 2010; Rees & Freeman, 2009; Rees & Hardy, 2004). In the sports context, research has demonstrated that social support can moderate the effects of competitive stressors on task performance in sport (Rees & Freeman, 2009; Rees & Hardy, 2004). Other dependent variables have also been examined under the rubric of the stress buffering hypothesis, with Freeman and Rees (2010) demonstrating social support as a significant moderator of the relationship between performance-related stressors and self-confidence. Furthermore, Mitchell, Evans, Rees, and Hardy (2013) have found significant stress buffering effects of social support on the relationship between injury stressors (e.g., incapacitation, loss of confidence) and psychological responses to injury (e.g., restlessness, isolation, feeling cheated). Although much is now known about the role of social support in the competitive stress process, scholars have yet to examine this moderator in relation to organizational stress. Indeed, whilst researchers have attempted to measure some organizational demands (e.g., expectations), this has been limited since the body of work has primarily been centred on competitive demands (e.g., fitness, form, technique). Freeman and Rees (2010) acknowledge this when stating:

The present study examined the relationship between perceived support . . . within the context of specific performance-related stressors. Further research is required to identify if the perceived support available . . . buffers the detrimental effect of other types of stressors. (p. 65).

Given the aforementioned prevalence and problematic nature of organizational stressors in sport (cf. Arnold & Fletcher, 2012; Fletcher & Arnold, 2017) and the identified beneficial

role that social support can play in this context (cf. Rees & Hardy, 2000), it is critical that the relationship between these two constructs is examined in future investigations. In seeking to further advance social support research, scholars should also look to consider the main effect and stress buffering models in relation to an individual's actual perceptions of their performances rather than using indicator variables (e.g., flow, feeling flat). Based on the aforementioned critical review of the research in this area to date, the purpose of this study was to examine the relationship between perceived organizational stressors and subjective performance in high-level sport, with particular focus on the potential moderating role of social support.

In line with the main effects model and stress buffering hypothesis forwarded in extant literature, the hypotheses for this study were as follows:

1. The frequency of perceived organizational stressors will directly predict subjective performance in athletes (H1); specifically perceived greater frequencies of organizational demands will negatively predict subjective performance.
2. Perceived social support (viz. emotional, esteem, informational, tangible) will directly predict subjective performance irrespective of levels of stressors (H2); specifically perceived higher levels of support will positively predict subjective performance.
3. Perceived emotional, esteem, informational, and tangible support will also have stress-buffering effects on subjective performance; specifically, the detrimental relationship between perceived organizational stressors and subjective performance will be reduced for those with high perceived support versus those with low perceived support (H3).

Plotted onto an interaction graph, this third hypothesis would be represented as an increase in the perceived frequency of the organizational stressors being associated with a maintenance or smaller decrease in subjective performance for those with high social support as opposed to those with low social support. Since there exists no extant research on these specific relationships, particular organizational stressor-social support combinations are not

hypothesized in this study.

Methods

Participants and Procedure

To be eligible for inclusion in this study, participants had to be studying at a British higher educational institution and be identified as a talented athlete. Specifically, to be recognised as talented, student-athletes were required to satisfy one of the following criteria within the past two years; a top 10 British ranking, a member of the Great Britain (GBR) squad, have a semi or professional sports contract, supported by the Talented Athlete Scholarship Scheme (TASS), on a World Class Programme (WCP), or receive National Governing Body (NGB) funding. Additionally, participants had to be British and over 18 years of age. Following institutional ethical approval, the study's information and questionnaire link were emailed to the TASS organization and every British university student-athlete coordinator, who were asked to distribute this to relevant individuals in their organization/institution (based on the above inclusion criteria). Additionally, NGBs were contacted and asked to promote the study to their members who also met the above inclusion criteria. Finally, participants meeting the criteria were also contacted via the research teams' personal sporting networks. On the questionnaire link, participants were further informed about the study and their ethical rights (i.e. that their data would remain confidential, their identities anonymous, and that they had the right to withdraw at any stage without consequence), before they were asked to confirm their consent to participate. The participants were asked to complete the questionnaire once (i.e. a cross-sectional design) and the questionnaire took approximately 20 minutes to complete. The final sample comprised 122 participants (60 male, 62 female) who met the aforementioned age, nationality, and sporting level inclusion criteria, had a mean age of 20.50 ($SD = 2.60$), and participated in a total of 34 sports at a national ($n = 28$) or international level ($n = 94$). The sports represented in the sample were: archery ($n = 2$), athletics ($n = 13$), badminton ($n = 2$), basketball ($n = 4$), boxing ($n = 2$), canoeing ($n = 4$),

cricket (n = 3), curling (n = 1), cycling (n = 2), dancing (n = 1), equestrian (n = 1), fencing (n = 15), football (n = 1), goalball (n = 1), golf (n = 1), gymnastics (n = 1), hockey (n = 14), judo (n = 3), karate (n = 1), lacrosse (n = 1), modern pentathlon (n = 10), netball (n = 4), rowing (n = 6), rugby (n = 11), shooting (n = 4), skiing (n = 2), softball (n = 2), squash (n = 1), swimming (n = 4), table tennis (n = 1), tennis (n = 1), triathlon (n = 1), volleyball (n = 1), and weightlifting (n = 1).

Measures

Organizational Stressor Indicator for Sport Performers (OSI-SP; Arnold, Fletcher, & Daniels, 2013). The 23 item OSI-SP was used to measure the frequency of organizational stressors that participants had encountered as part of their participation in competitive sport over the past month. For all items on the OSI-SP, the stem “In the past month, I have experienced pressure associated with. . .” was provided, to which the participants responded on the frequency rating scale (“how often did this pressure place a demand on you?”) with options ranging from zero to five (0 = never, 5 = always). The five subscales on the indicator are Goals and Development (six items; example: “the development of my sporting career”), Logistics and Operations (nine items; example: “travelling to or from training or competitions”), Team and Culture (four items; example: “the atmosphere surrounding my team”), Coaching (two items; example: “my coach’s personality”), and Selection (two items; example: “how my team is selected”). There is evidence to support the factorial, concurrent, discriminant, and cross-cultural validity and internal consistency of the OSI-SP (Arnold et al., 2013; Arnold, Ponnusamy, Zhang, & Gucciardi, 2017) and, in the present study, acceptable internal consistency was found for all subscales (α range = .74 to .95). Whilst it is recognized that the intensity and duration subscales of the OSI-SP (cf. Arnold et al., 2013) provide additional information beyond a sole focus on frequency, we chose to solely focus on the frequency dimension for two key reasons. First, so as to keep the burden of measurement as manageable as possible for our participants and thus ensure greater likelihood of full

completion. Second, as noted by Arnold et al. (2013), the high correlations between the three dimension subscales of the OSI-SP mean that “the frequency scale alone would likely be adequate for researchers or practitioners requiring a shorter version of the indicator” (p. 192).

Perceived Available Support in Sport Questionnaire (PASS-Q; Freeman, Coffee, & Rees, 2011). Participants’ perceptions of available support were measured using the 16 item PASS-Q. For each of the items, a 5-point Likert-type scale that ranged from 0 (*not at all*) to 4 (*extremely*) was used to assess the extent to which performers felt they had each type of support available to them. The questionnaire consists of four subscales which measure the four main dimensions of social support: emotional (example item: “provide you with comfort and security”), esteem (example item: “reinforce the positives”), informational (example item: “give you constructive criticism”), and tangible (example item: “help with tasks to leave you free to concentrate”). Evidence has been provided for the reliability and factorial, construct, and concurrent validity of the PASS-Q (Freeman et al., 2011) and the subscales were also internally consistent in the present study (α range = .74 to .87).

Performance. Measuring athletic performance is extremely difficult in sports other than those in which performance can be determined through a time or distance (e.g. athletics), and when evaluating individual performances within teams. Moreover, comparing athletes’ performances across sports is complex. In light of these points and the varied sports from which participants were drawn in the present study, we drew upon the tradition in sport psychology (see, e.g., Arnold, Fletcher et al., 2017; Brown, Arnold, Standage, & Fletcher, 2017; Levy, Nicholls, & Polman, 2011; Nicholls, Polman, & Levy, 2012; Pensgaard & Duda, 2003; Reeves, Nicholls, & McKenna, 2011) to employ a subjective, single-item measure of performance. Specifically, in this study, participants were asked to rate their performance over the past month in comparison to their personal best using a scale of 0 (*very poor*) to 10 (*excellent*). This was deemed this the most appropriate way of providing a reflective and explanatory subjective measure of athletes’ performances and enabling comparisons across

sports and sporting levels. Notwithstanding limitations of self-report, subjective measurements (cf. Arnold & Fletcher, 2012a), some scholars have suggested that self-assessed performance in athletes who are very familiar with their own abilities and have a good knowledge of their sporting discipline can be more appropriate and sensitive than objective measures (Pellizzari, Bertollo, & Robazza, 2011; Raglin, 1992; Raglin & Morgan, 1988; Thelwell & Maynard, 2003). In our sample, high-level sport performers were likely to assess their performance quality frequently (cf. Saw, Main, & Gustin, 2015); therefore, similar to Pellizzari and colleagues (2011), it was deemed that self-referenced performance was expected to be accurate. Participants were asked to reflect on both organizational stressors and performance over the past month, because this has been previously suggested as an appropriate time period for encountering and recollecting organizational stressors (cf. Arnold et al. 2013). In line with this study's purpose to examine the relationship between perceived stressors and subjective performance, we deemed it appropriate to match the time-frames of reflection for the two variables.

Data Analysis

Moderated hierarchical regression analysis (Baron & Kenny, 1986; Cohen & Wills, 1985; Jaccard, Turrisi, & Wan, 1990) were used to examine the relationships between perceived organizational stressors, social support, and subjective performance. The PROCESS command in SPSS can be used to estimate a moderation model with *M* moderating the effect of *X* on *Y* by requesting model = 1 (cf. Hayes, 2017). Applied to this study, *M* refers to social support, *X* to organizational stressors, and *Y* to subjective performance. Twenty moderated hierarchical regression analyses were run (i.e. for each subscale of organizational stressors (*n* = 5) a separate regression was conducted with each social support dimension (*n*=4)). The independent variables were entered in three steps: the stressor subscale first, then the social support dimension, then the interaction (i.e. stressor*support) term. As suggested by Hayes (2017), the significance of increments in explained variance in *Y* over and above the variance

accounted for by those variables already entered into the equation was assessed at each step. The f^2 statistic was also calculated to illustrate the effect size of the moderation (Aiken & West, 1991), with Cohen's (1988) guidelines adopted to illustrate a small (0.02), medium (0.15), or large (0.35) effect. Following guidelines in the literature (cf. Aiken & West, 1991; Cohen, Cohen, West & Aiken, 2003; Hayes, 2005, 2017; Spiller, Fitzsimons, Lynch, & McClelland, 2013), significant interactions were plotted to display the relationship between perceived organizational stressors and subjective performance at low (1SD below the mean), moderate (mean), and high (1 SD above the mean) levels of perceived support. To provide more insight into how the relationship between the predictor variable (e.g., perceived stressors) and the outcome variable (e.g., subjective performance) changes at various values of the moderator variable (social support) (rather than just low, mean and high), the Johnson and Neyman (1936) approach was also adopted in this study (cf. Hayes, 2017).

Results

Preliminary Analysis

There was a negative relationship found between the perceived frequency of organizational stressors and subjective performance; however, this was not significant (see Table 1 in Supplementary Files). Turning to the stressor subscales, a significant negative relationship was found between the coaching frequency subscale and subjective performance ($r = -.19, p < .05$); however, none of the other stressor subscales demonstrated a significant relationship. For perceived social support, all dimensions demonstrated a positive relationship with subjective performance; however, only emotional ($r = .18$), esteem ($r = .21$), and tangible ($r = .19$) dimensions were found to be significant (all $ps < .05$).

Main Analysis

Tables 2-6 display the results of the moderation analyses. To illustrate the nature of significant interactions, the relationships between the perceived frequency of organizational stressors, social support dimensions, and subjective performance are displayed graphically in

Figures 1-4 (see Supplementary File).

Goals and Development. The results indicated that athletes' perceptions of esteem support moderated the relationship between the goals and development stressors encountered and subjective performance, ($F(1, 118) = 4.68, p = <.05, \Delta R^2 = .03, f^2 = .030$). For every one unit increase in goals and development stressors frequency, there was a 0.59 decrease in subjective performance ($p < .05$). Interaction slopes for goals and development stressor frequency predicting subjective performance demonstrated that when esteem support was low (-.926), there was a non-significant positive relationship between these demands and subjective performance, $b = 0.56, 95\% \text{ CI } [-0.03, 1.15], t = 1.87, p = .06$ (see Figure 1). At the mean value of esteem support (.000), there was a non-significant positive relationship between these demands and subjective performance, $b = 0.01, 95\% \text{ CI } [-0.66, 0.69], t = 0.04, p = .97$. When esteem support was high (.926), there was a non-significant negative relationship between these demands and subjective performance, $b = -0.53, 95\% \text{ CI } [-1.56, 0.50], t = -1.02, p = .31$. The Johnson Neyman technique illustrated that the relationship between goals and development stressors and subjective performance was significant only at values of esteem support less than -.997. The relationship between goals and development stressors and subjective performance was not significantly moderated by the perceptions of emotional, informational, or tangible support.

Logistics and Operations. The relationship between logistics and operations stressors and subjective performance was not significantly moderated by the perceptions of informational, emotional, esteem, or tangible support.

Team and Culture. The results indicated that athletes' perceptions of esteem support moderated the relationship between the team and culture stressors encountered and subjective performance, ($F(1, 118) = 3.97, p = <.05, \Delta R^2 = .04, f^2 = .043$). For every one unit increase in team and culture stressors frequency, there was a 0.53 decrease in subjective performance ($p < .05$). Interaction slopes for team and culture stressor frequency predicting subjective

performance demonstrated that when esteem support was low (-.926), there was a non-significant positive relationship between these demands and subjective performance, $b = 0.68$, 95% CI [-0.06, 1.43], $t = 1.82$, $p = .07$ (see Figure 2). At the mean value of esteem support (.000), there was a non-significant positive relationship between these demands and subjective performance, $b = 0.19$, 95% CI [-0.25, 0.64], $t = 0.86$, $p = .39$. When esteem support was high (.926), there was a non-significant negative relationship between these demands and subjective performance, $b = -0.30$, 95% CI [-0.86, 0.27], $t = -1.05$, $p = < .30$. The Johnson Neyman technique illustrated that the relationship between team and culture stressors and subjective performance was only significant at values of esteem support less than -1.96.

The results also demonstrated that athletes' perceptions of tangible support moderated the relationship between the team and culture stressors encountered and subjective performance, ($F(1,118) = 5.71$, $p = < .05$, $\Delta R^2 = .05$, $f^2 = .050$). For every one unit increase in team and culture stressors frequency, there was a 0.59 decrease in subjective performance ($p < .05$). Interaction slopes for team and culture stressor frequency predicting subjective performance demonstrated that when tangible support was low (-.910), there was a non-significant positive relationship between these demands and subjective performance, $b = 0.70$, 95% CI [-0.01, 1.40], $t = 1.95$, $p = .05$ (see Figure 3). At the mean value of tangible support (.000), there was a non-significant positive relationship between these demands and subjective performance, $b = 0.16$, 95% CI [-0.27, 0.59], $t = 0.73$, $p = .46$. When tangible support was high (.910), there was a non-significant negative relationship between these demands and subjective performance, $b = -0.37$, 95% CI [-0.89, 0.15], $t = -1.42$, $p = .16$. The Johnson Neyman technique illustrated that the relationship between team and culture stressors and subjective performance was significant at values of tangible support less than -.96, and at values of tangible support greater than 1.55. The relationship between team and culture stressors and subjective performance was not significantly moderated by the perceptions of emotional or informational support.

Coaching. The results indicated that the relationship between coaching stressors encountered and subjective performance was not significantly moderated by the perceptions of emotional, esteem, informational, or tangible support.

Selection. The results indicated that athletes' perceptions of informational support moderated the relationship between the selection stressors encountered and subjective performance, ($F(1,118) = 4.05, p = <.05, \Delta R^2 = .03, f^2 = .037$). For every one unit increase in selection stressors frequency, there was a 0.51 decrease in subjective performance ($p < .05$). Interaction slopes for selection stressor frequency predicting subjective performance demonstrated that when informational support was low ($-.867$), there was a non-significant positive relationship between these demands and subjective performance, $b = 0.38, 95\% \text{ CI } [-0.21, 0.97], t = 1.27, p = .21$ (see Figure 4). At the mean value of informational support ($.000$), there was a non-significant negative relationship between these demands and subjective performance, $b = -0.07, 95\% \text{ CI } [-0.45, 0.32], t = -0.35, p = .73$. When informational support was high ($.867$), there was a non-significant negative relationship between these demands and subjective performance, $b = -0.51, 95\% \text{ CI } [-1.09, 0.07], t = -1.76, p = < .08$. The Johnson Neyman technique did not illustrate any specific values of informational support at which the relationship between selection stressors and subjective performance was significant. The relationship between selection stressors and subjective performance was not significantly moderated by the perceptions of emotional, esteem, or tangible support.

Discussion

Although much is now known about the role of social support in the competitive stress process, scholars have yet to examine this moderator in relation to organizational stress. The purpose of this study, therefore, was to examine the relationship between perceived organizational stressors and subjective performance in sport, with particular focus on the potential moderating role of perceived social support. In relation to the first hypothesis, that the perceived frequency of organizational stressors would directly predict subjective performance

in athletes, a negative (albeit non-significant) relationship was found. Although at a subscale level, a significant negative relationship was found between the coaching frequency subscale and subjective performance, none of the other stressor subscales demonstrated a significant relationship. It was secondly hypothesized that perceived social support would directly predict subjective performance irrespective of levels of stressors. In line with this, all four dimensions demonstrated a positive relationship with subjective performance, with emotional, esteem, and tangible dimensions found to be significant. Turning to the moderation hypothesis, the results illustrated that some dimensions of social support did act as a significant moderator of the relationship between organizational stressors and subjective performance, although, this was in the opposite direction to the one normally observed in the literature and hypothesized in this study. Although effect sizes for these moderator effects were small (.03 to .05), when judged against Cohen's (1988) suggestions, they are far larger than the median effect size of .002 for tests of moderation noted by Aguinis, Beaty, Boik, and Pierce (2005) across thirty years of research, and could even be considered large according to Kenny's (2018) suggested revised criteria of 0.005, 0.01, and 0.025 for small, medium, and large effects, respectively.

The significant negative relationship found between the coaching frequency subscale and subjective performance may be explained by the fundamental role a coach, and specifically an athlete's relationship with his or her coach, can play in developing talent and producing world-class athletic performances (Durand-Bush & Salmela, 2002; Rees et al., 2016); therefore when stressors arise relating to the coach-athlete relationship, performance can suffer. Alternatively, considering this relationship from a bidirectional perspective, it could be the case that as perceived performances improve, the performers do not perceive coaching stressors as frequently. Indeed it is often witnessed in elite sport that, during times of poor athletic performance, a coach can be made a scapegoat; however, they are not perceived to be a problem when performances are good (cf. Flores, Forrest, & Tena, 2012; Jowett, 2003). In relation to the negative (albeit non-significant) relationships found between organizational

stressors in general and subjective performance, this highlights the need for future research to examine further components of the transactional stress process (e.g., appraisal, coping etc) to explore this in more depth.

Turning to the significant positive relationships found between subjective performance and emotional, esteem, and tangible support, these findings add to the existing literature that social support can have beneficial effects for athletic performance (Rees & Hardy, 2004; Rees et al., 2007; Gould, Greenleaf, Chung, & Guinan, 2002; Tamminen et al., 2018). Whilst studies have proposed how perceived support contributes to performance, for example via influencing situational control and cognitive appraisals (Freeman & Rees, 2009), future research is needed to examine the transferability of this explanation to the organizational stress process.

Specifically, work should be conducted which looks to examine if factors such as control and appraisal mediate the relationship between organizational stressors and performance. With regards to the non-significant relationship between informational support and subjective performance, Freeman and Rees (2009) suggest that certain support dimensions (e.g., esteem) may be more important and effective than others in achievement contexts. Taking the findings of hypotheses one and two together, this study provides some support for the independent distress deterrent model (Wheaton, 1985) which suggests that the role of the resource (i.e. support) does not depend on the level of stress as the two constructs have independent effects on distress. In relation to current findings it is clear that some stressors and social support exerted separate and opposite effects on outcomes (e.g., subjective performance).

Returning to the moderator findings, for the significant interactions evident in the study, rather than the negative relationship between organizational stressors and subjective performance being reduced for those with high perceived support versus those with low perceived support, the opposite was the case for some social support dimensions. Specifically, all of the interaction slopes results illustrated that at lower levels of social support there was a positive relationship between perceived organizational stressors and subjective performance,

whereas a negative relationship was displayed at higher levels of social support. Indeed, the Johnson-Neyman analysis demonstrated that the stressor-performance relationships were primarily apparent for those with particularly low levels of esteem support, and for those with either particularly low or particularly high levels of tangible support. These results are somewhat surprising, as intuitively it makes sense that social support should be helpful to individuals experiencing stress. This effect has, however, been identified before in research where social support has been found to exacerbate rather than mitigate employees' stress reactions and has been termed *reverse* buffering (Kaufmann & Beehr, 1986; Tucker, Jimmieson, & Bordia, 2016).

There are various examples of reverse buffering in the job stress literature and, given the identified similarities between high-level sport and business contexts (e.g., organizational issues, stress, leadership, high-performing teams; Jones, 2002), it is worth reflecting on these examples in the present study. For example, Kaufmann and Beehr (1989) found with a sample of police officers that high levels of instrumental support exacerbated the impact of job stressors (e.g., workload, skill underutilization) on strain (e.g., dissatisfaction, boredom, depression). As a second example, Kickul and Posig (2001) found that a supervisor's emotional support strengthened the positive relationship between stressors (e.g., role conflict, time pressures) and emotional exhaustion. Since there is no widely accepted reason for why reverse buffering occurs (Fenlason & Beehr, 1994), various explanations have been extracted from the literature to try and explain the findings of the present study. The first explanation relates to the social support being ineffective or deficient; thus, when high levels of social support are provided to athletes, it does not assist them in effectively managing the stressors that they are experiencing and can even make the situation worse (Patterson, 2003). This not only illustrates the importance of matching specific types of social support with the demands of the stressor being encountered (Rees & Hardy, 2004), but also illustrates the need to better understand what is deemed sufficient and effective social support in the sporting context (cf.

DeFreese & Smith, 2014; Rosenfeld & Richman, 1997).

The second explanation for reverse buffering suggests that it occurs when the sources of support are not independent from the sources of the stressors (Glaser, Tatum, Nebekker, Sorensen, & Aiello, 1999; Mayo, Sanchez, Pastor, & Rodriguez, 2012). For example, if a teammate or coach who is causing strain approaches an athlete to offer his or her support, this approach may be experienced as stressful no matter what type of support is being offered. Extant literature also suggests that it is important to consider source congruence (Tucker et al., 2016); for example, for a workload stressor, emotional support may be incongruent with the type of stressor and in contradiction with the manager's actions of assigning a high workload in the first place. Instead, with such a stressor it is proposed that instrumental support (i.e. tangible assistance to help employees solve their obligations) would be more appropriate; however, it too has also demonstrated reverse buffering effects (Kaufmann & Beehr, 1986, 1989). Future research is, therefore, required to examine if source incongruence and mixed messages do exacerbate rather than alleviate the effects of organizational stressors on subjective performance.

The third explanation for reverse buffering concerns the supportive communications that occur and the provider of social supports' ability to regulate his or her own emotions. Indeed, research suggests that supportive communications can on the one hand convince individuals that stressors are not as bad as they seem, but alternatively they can also emphasize and exaggerate stressors and give the impression that they are bad and even worse than originally thought (Beehr, 1976; Glaser et al., 1999; LaRocco, House, & French, 1980; Tucker et al., 2016). The latter function can exacerbate the levels of strain and reinforce aversive effects of the stressor encountered. To determine which of these functions the supportive communication fulfils, Tucker et al. (2016) suggest that the support providers' abilities to regulate their own emotions determines if the support they provide has a positive (buffering) or negative (reverse-buffering) effect on the relationship between stressors and outcomes. Given

the emotional contagion that has been demonstrated in the sports context (Moll, Jordet, & Pepping, 2010), it is, therefore, imperative that stakeholders in sport not only provide optimal support for athletes, but that they also exhibit optimal emotional regulation in this process (Wagstaff, Hanton, & Fletcher, 2013).

A fourth explanation is that reverse buffering may be evident because of the study design adopted. Specifically, as Glaser et al. (1999) explain, by adopting a cross-sectional design which collects data on the variables concurrently, a causal direction cannot be imputed. It could be the case that athletes that are experiencing greater stressors seek more social support than those perceiving less demands. If such social support is effectively sought they would have higher levels of social support which, if effective, may reduce strain over time. Since the current study design is unable to verify this fourth explanation, future research should look to utilize designs that allow stronger causal inferences. This may be, for example, an experimental or quasiexperimental design which collects data over several time-points.

A further explanation for reverse buffering may be the situation itself. As Buunk and Hoorens (1992) suggest, if a stressful situation implies strong emotions or experiences that are either embarrassing or evoke social disapproval, affiliating with and receiving support from others may aggravate these responses. Turning from the situation to the relationship between the support provider and receiver, less strain is present if the relationship is perceived equitable (Buunk & Hoorens, 1992). In relation to reverse buffering, this explanation would propose that support provided to athletes may backfire or trigger negative affect, cognitions, and behaviors if people are not able or willing to reciprocate the supportive behavior, or if they receive more favorable outcomes than the person providing the support. A final explanation for reverse buffering may be that high levels of social support undermine an athlete's self-esteem and perceptions of their own competence and autonomy (Tucker et al., 2016). This can make them feel reliant on others to cope with stressors and inhibit the satisfaction of their basic psychological needs, a process that can predict thriving (Brown, Arnold, Fletcher, & Standage,

2017; Standage, 2012; Spreitzer & Porath, 2014). To explain this process, Brown, Arnold, Fletcher et al. (2017) have defined thriving as the joint experience of development and success, and suggested that to achieve both of these an individual needs to experience holistic functioning which has typically been determined through indices of well-being and performance. Thriving can be facilitated by various personal and contextual enablers and the satisfaction of basic psychological needs has been suggested to act as a process variable through which these enablers may predict thriving (Brown, Arnold, Fletcher et al., 2017). In support of this, recent work by Brown, Arnold, Standage, et al. (2017) has found that the satisfaction of needs significantly predicted athletes' membership to a thriving profile, whilst their frustration significantly predicted membership to a non-thriving profile.

Strengths and Limitations

This study provides the first examination of social support as a moderator for the relationship between organizational stressors and subjective performance in high-level sport. Indeed, previous research in the sports context examining social support as a moderator has focused on the competitive stress process and has sampled performers competing at lower levels of sport. A real strength of this study was that all participants were competing at either a national or international level in their sport; thus, offering advancements in knowledge and understanding beyond existing literature for academics, and for athletes, coaches, and practitioners operating within the sport context. Specifically, although not the original aim of the study, the findings offer novel insight into the role of reverse buffering and provide various explanations for why the associations suggest that some dimensions of social support may exacerbate rather than mitigate the negative consequences of organizational demands.

Notwithstanding these strengths, it is important to acknowledge the limitations of this study and subsequent directions for future research. First, it is important to recognize that the direct negative relationship between organizational stressors and subjective performance was non-significant (bar the coaching subscale); thus, the reverse buffering findings should be

interpreted with this in mind. Moreover, although single item measures may be appropriate for providing useful information in some circumstances as well as offering various benefits to the data collection process (cf. Fisher, Matthews, & Gibbons, 2016; Gardner, Cummings, Dunham, & Pierce, 1998), it is suggested that scholars attempt to develop and validate in the future a more comprehensive (i.e. more than one item) measure of subjective athletic performance following standard scale development guidelines (cf. DeVellis, 2017). Moreover, it would be advised to combine these subjective measures with more objective, external criteria (e.g., time, strength, endurance etc) so that future research can re-examine relationships from this study. Furthermore, although the time-frame of one month was deemed an appropriate reflective period for this study, it has been argued that retrospective recall of encounters over time tend to be inaccurate (Thomas & Diener, 1990). As a result, it is suggested that scholars consider the use of methods such as daily diaries to capture daily fluctuations in stressors and performance and, in so doing, minimize recall bias. Despite these acknowledgements, it is worth noting that regardless of organizational stressors not directly predicting subjective performance, the findings do highlight that at varying levels of demands differential levels of social support are important for subjective performance.

A further limitation of this study is its cross-sectional nature which does not allow for causation conclusions to be drawn. As well as only collecting data from one point in time, taking measures of the variables from one source (e.g., the athlete) using one method (e.g., questionnaires) may have induced common method variance in this study. Future research should, therefore, look to collect data on the role of social support in the stress process across time utilizing both subjective and objective measures (Arnold & Fletcher, 2012a). Such longitudinal designs would better capture the transactional nature of stress and the reciprocal relationships between components of the stress process (Fletcher et al., 2006; see also, Bartholomew, Arnold, Hampson, & Fletcher, 2017). Another theoretically informed future research direction would involve the consideration of social support as an end result in the

stress process, rather than a moderating variable (Kickul & Posig, 2001). For instance, it may be the case that athletes are seeking social support because of the stressors they experience and the negative impacts these can have. A further line of enquiry, in accordance with the demand-control-support model (Bakker, Demerouti, & Verbeke, 2004; Karasek, 1979), would be to examine the amount of discretion and autonomy provided to athletes and how this interacts with organizational demands and social support to impact performance and other outcomes (e.g., well-being, physical health) in sport. Finally, it would also be pertinent for future research to (space permitting) include the intensity and duration dimension subscales of the OSI-SP (cf. Arnold et al., 2013), and examine the moderating role of social support on the relationship between other dimensions of organizational stressors and these outcomes in sport.

Practical Implications

There are various implications for applied practice that can be forwarded from this study and its findings. Taking first the main effects, the findings point to the importance of minimizing the frequency of coaching stressors. Identified coaching stressors in the literature include a coach's personality, attitude, behaviors, and interactions with athletes (Arnold & Fletcher, 2012). Addressing these stressors could take the form of a proactive, primary-level stress management intervention which involves a coach education program (see, for a review; Langan, Blake, & Lonsdale, 2013) that aims to raise coaches' awareness of the stressors they can create for their athletes. In terms of the moderation findings, it is important to note that the implication of these are not necessarily that social support always makes things worse in high-level sport when organizational stressors are encountered. Indeed, the findings suggest that having social support may still facilitate better subjective performances (e.g., at low levels of organizational stressors) and, thus, should be promoted in the sports context. Instead the main implication of these findings is that a frequently proposed explanation, that social support can buffer the effects of stress, may not always be wholly appropriate. Indeed, notwithstanding the limitations of this study, the findings make initial suggestions that higher levels of some types

of social support may reduce rather than enhance subjective performance as the frequency of organizational stressors increases.

As well as implementing various ways to address the organizational stressors encountered (Arnold & Fletcher, 2012b; Didymus & Fletcher, 2017a; Randall, Nielsen, & Houdmont, 2018; Rumbold, Fletcher, & Daniels, 2012, 2018), interventions focused around the social support that is provided are also advised. First, it is suggested that the support being provided is effective and efficient for the athlete and is carefully matched to them (Marigold, Cavallo, Holmes, & Wood, 2014). Second, the support needs to be appropriate for the stressors that an athlete is encountering. For instance, if an athlete is experiencing a high frequency of team and culture stressors then the findings of this study initially suggest that providing low, rather than high, levels of tangible support may have positive implications for subjective performance. Third, it is important to ensure that the person providing the support is not also creating the stressor that the athlete requires support for. If this is the case, and the stressor itself can't be addressed, then the support offered should be congruent to the associated stressor (Tucker et al., 2016). Fourth, when providing social support, whether on a 1:1 or group basis, efforts should be made to structure these interactions in a way that minimizes negative communication and encourages athletes to express any demands or concerns constructively (Jenkins & Elliot, 2004). Finally, the provider of the support should ensure that they can effectively regulate their own emotions (Tucker et al., 2016; Wagstaff et al., 2013).

To conclude, this study has been the first to examine the relationship between organizational stressors and subjective performance in high-level sport, with particular focus on the potential moderating role of social support. Contrary to empirical research on the role of social support when encountering competitive stressors, the findings illustrate reverse buffering; that is when experiencing greater frequencies of organizational stressors, associations suggest that some dimensions of social support exacerbate rather than mitigate athletes' stress reactions (i.e. impaired subjective performance). As well as the advancements

619 these findings can make to theoretical understanding of organizational stress in sport (Fletcher
620 et al., 2006), they also present a number of significant implications for athletes, coaches, and
621 applied practitioners aiming to enhance performance in pressurized and demanding situations.

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925 Table 1

926 *Correlations and Descriptive Statistics of The Study Variables*

Variables	1	2	3	4	5	6	7	8	9	10	11
1. OSa F											
2. GD F	.75**										
3. LO F	.84**	.52**									
4. TC F	.72**	.48**	.38**								
5. C F	.60**	.31**	.36**	.46**							
6. S F	.60**	.37**	.34**	.52**	.32**						
7. EmSS	-.16	-.16	-.06	-.01	-.23*	-.01					
8. EsSS	-.20*	-.19*	-.08	-.06	-.26	-.01	.80**				
9. ISS	-.18*	-.12	-.15	-.03	-.26	.09	.61**	.65**			
10. TSS	-.11	-.08	-.04	.02	-.25	.06	.66**	.75**	.60**		
11. Perc Perf	-.06	-.01	-.12	.05	-.19*	-.03	.18*	.21*	.19*	.15	
<i>M</i>	1.39	1.97	1.20	1.21	1.16	1.26	3.28	3.12	3.43	2.94	7.05
<i>SD</i>	.65	.69	.81	.98	1.32	1.15	1.06	.93	.87	.91	2.31

927 *Note.* OSa = Organizational stressor average; F = Frequency dimension; GD = Goals and development stressors; LO = Logistics and operations
928 stressors; TC = Team and culture stressors; C = Coaching stressors; S = Selection stressors; EmSS = Emotional social support; EsSS =
929 Esteem social support; ISS = Informational social support; TSS = Tangible social support; Perc Perf = Perceived Performance. * $p < .05$; **
930 $p < .01$

Table 2

Moderation Results for The Goals and Development Stressors

Variable	<i>b</i> [LLCI, ULCI]	SE	<i>t</i>	<i>P</i>
GD F	-.03 [-.72, .66]	.35	-.09	.93
EmSS	.44 [.07, .80]	.19	2.35	.02
GD F x EmSS	-.40 [-.95, .16]	.28	-1.43	.16
GD F	.01 [-.66, .69]	.34	.04	.97
EsSS	.55 [.19, .91]	.18	3.04	.00
GD F x EsSS	-.59 [-1.13, -.05]	.27	-2.16	.03
GD F	.04 [-.59, .68]	.32	.13	.90
ISS	.50 [.03, .97]	.24	2.12	.04
GD F x ISS	-.36 [-1.21, .49]	.43	-.84	.41
GD F	-.02 [-.65, .61]	.32	-.07	.94
TSS	.41 [-.02, .84]	.22	1.89	.06
GD F x TSS	-.51 [-1.09, .06]	.29	-1.76	.08

Note. F = Frequency dimension; GD = Goals and development stressors; EmSS = Emotional social support; EsSS = Esteem social support; ISS = Informational social support; TSS = Tangible social support.

Table 3

Moderation Results for The Logistics and Operations Stressors

Variable	<i>b</i> [LLCI, ULCI]	SE	<i>t</i>	<i>P</i>
LO F	-.33 [-.87, .21]	.27	-1.23	.22
EmSS	.40 [.03, .77]	.19	2.16	.03
LO F x EmSS	-.33 [-.79, .13]	.23	-1.41	.16
LO F	-.31 [-.85, .23]	.27	-1.13	.26
EsSS	.52 [.14, .91]	.19	2.70	.01
LO F x EsSS	-.27 [-.75, .21]	.24	-1.11	.27
LO F	-.37 [-.93, .20]	.29	-1.28	.20
ISS	.45 [-.02, .93]	.24	1.90	.06
LO F x ISS	-.50 [-1.01, .01]	.26	-1.93	.06
LO F	-.39 [-.91, .14]	.27	-1.46	.15
TSS	.40 [-.02, .83]	.22	1.87	.06
LO F x TSS	-.50 [-1.03, .04]	.27	-1.85	.07

Note. F = Frequency dimension; LO = Logistics and operations stressors; EmSS = Emotional social support; EsSS = Esteem social support; ISS = Informational social support; TSS = Tangible social support.

Table 4

Moderation Results for The Team and Culture Stressors

Variable	<i>b</i> [LLCI, ULCI]	SE	<i>t</i>	<i>P</i>
TC F	.15 [-.31, .61]	.23	.65	.52
EmSS	.42 [.05, .79]	.19	2.22	.03
TC F x EmSS	-.28 [-.74, .19]	.24	-1.19	.24
TC F	.19 [-.25, .64]	.23	.86	.39
EsSS	.47 [.08, .85]	.20	2.39	.02
TC F x EsSS	-.53 [-1.06, -.00]	.27	-1.99	.05
TC F	.10 [-.33, .53]	.22	.45	.65
ISS	.39 [-.07, .85]	.23	1.67	.10
TC F x ISS	-.63 [-1.32, .06]	.35	-1.82	.07
TC F	.16 [-.27, .59]	.22	.73	.46
TSS	.36 [-.03, .75]	.20	1.84	.07
TC F x TSS	-.59 [-1.07, -.10]	.25	-2.39	.02

Note. F = Frequency dimension; TC = Team and culture stressors; EmSS = Emotional social support; EsSS = Esteem social support; ISS = Informational social support; TSS = Tangible social support.

Table 5

Moderation Results for The Coaching Stressors

Variable	<i>b</i> [LLCI, ULCI]	SE	<i>t</i>	<i>P</i>
C F	-.26 [-.61, .09]	.18	-1.47	.14
EmSS	.32 [-.07, .70]	.20	1.62	.11
C F x EmSS	.02 [-.25, .28]	.13	.12	.90
C F	-.27 [-.60, .07]	.17	-1.57	.12
EsSS	.43 [.05, .82]	.20	2.21	.03
C F x EsSS	-.04 [-.32, .24]	.14	-.29	.78
C F	-.33 [-.72, .06]	.20	-1.68	.10
ISS	.37 [-.15, .89]	.26	1.39	.17
C F x ISS	-.21 [-.55, .13]	.17	-1.21	.23
C F	-.33 [-.68, .01]	.17	-1.91	.06
TSS	.28 [-.17, .73]	.23	1.24	.22
C F x TSS	-.13 [-.40, .15]	.14	-.91	.36

Note. F = Frequency dimension; C = Coaching stressors; EmSS = Emotional social support; EsSS = Esteem social support; ISS = Informational social support; TSS = Tangible social support.

Table 6

Moderation Results for The Selection Stressors

Variable	<i>b</i> [<i>LLCI</i> , <i>ULCI</i>]	SE	<i>t</i>	<i>P</i>
S F	-.08 [-.47, .32]	.20	-.40	.69
EmSS	.40 [.02, .77]	.19	2.11	.04
S F x EmSS	-.14 [-.46, .17]	.16	-.89	.37
S F	-.04 [-.44, .35]	.20	-.23	.82
EsSS	.49 [.09, .90]	.20	2.42	.02
S F x EsSS	-.17 [-.58, .24]	.21	-.80	.43
S F	-.07 [-.45, .32]	.20	-.35	.73
ISS	.36 [-.11, .82]	.24	1.53	.13
S F x ISS	-.51 [-1.02, -.01]	.26	-2.01	.05
S F	-.07 [-.47, .33]	.20	-.36	.72
TSS	.38 [-.05, .81]	.22	1.75	.08
S F x TSS	-.38 [-.82, .06]	.22	-1.72	.09

Note. F = Frequency dimension; S = Selection stressors; EmSS = Emotional social support; EsSS = Esteem social support; ISS = Informational social support; TSS = Tangible social support.

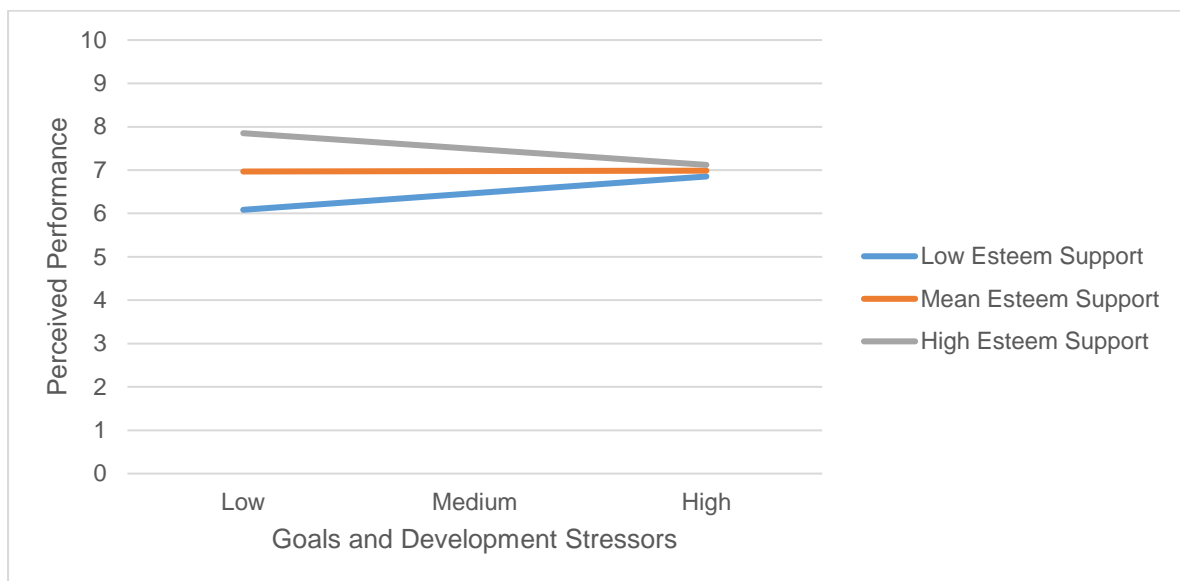
Supplementary File: Figures

Figure 1. A plot of the interaction between goals and development stressors and perceived performance at low (1SD below the mean), moderate (mean), and high (1SD above the mean) levels of perceived esteem support. Perceived performance is measured on a 0 (very poor) to 10 (excellent) scale.

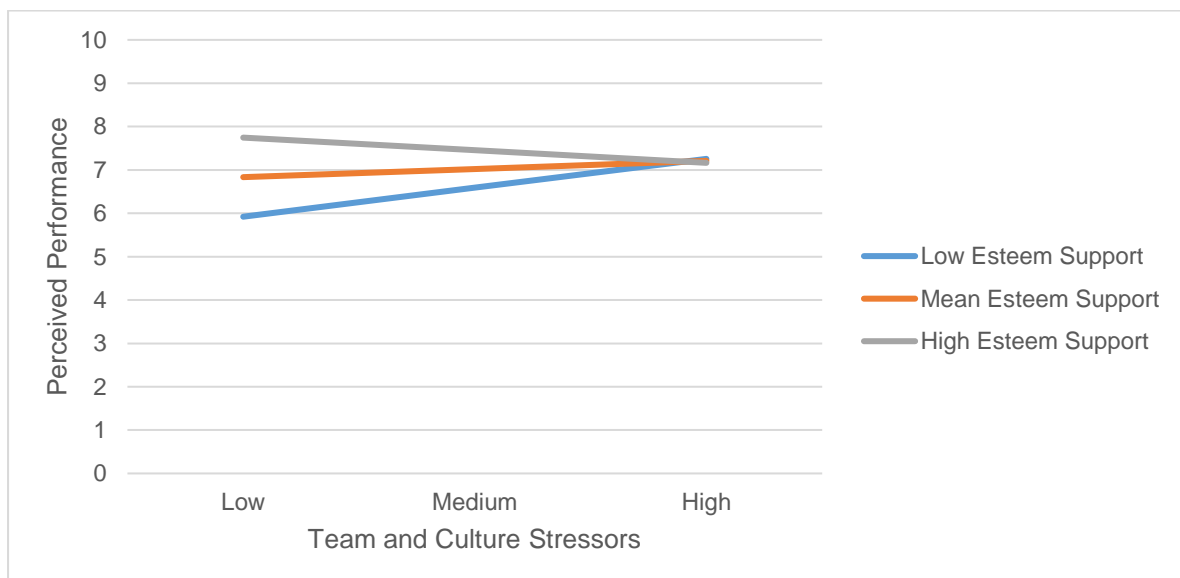


Figure 2. A plot of the interaction between team and culture stressors and perceived performance at low (1SD below the mean), moderate (mean), and high (1SD above the mean) levels of perceived esteem support. Perceived performance is measured on a 0 (very poor) to 10 (excellent) scale.

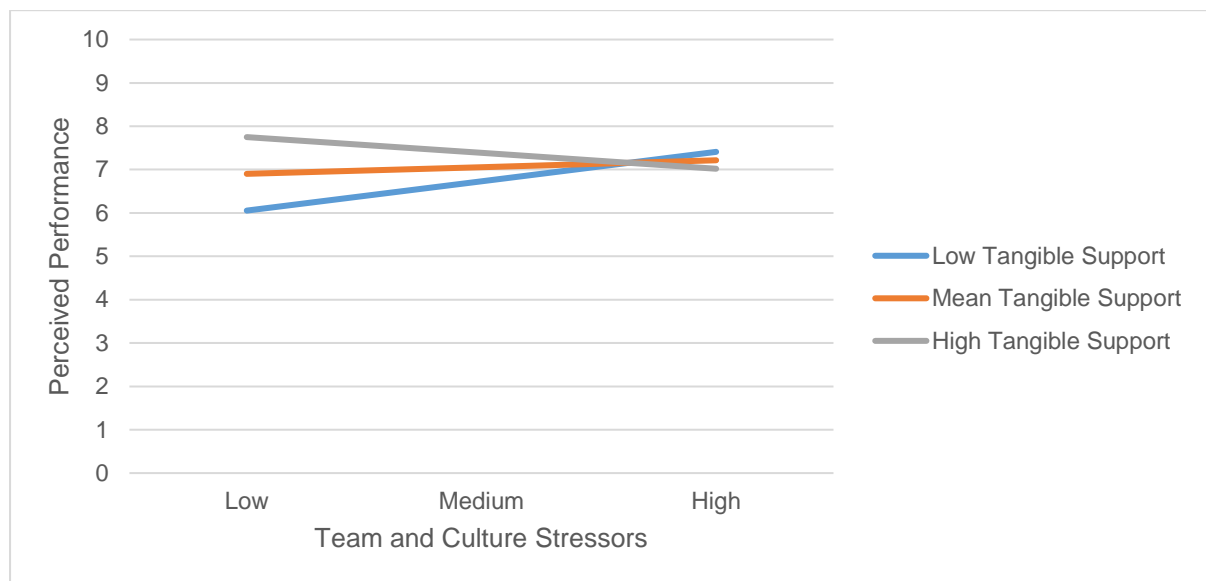


Figure 3. A plot of the interaction between team and culture stressors and perceived performance at low (1SD below the mean), moderate (mean), and high (1SD above the mean) levels of perceived tangible support. Perceived performance is measured on a 0 (very poor) to 10 (excellent) scale.

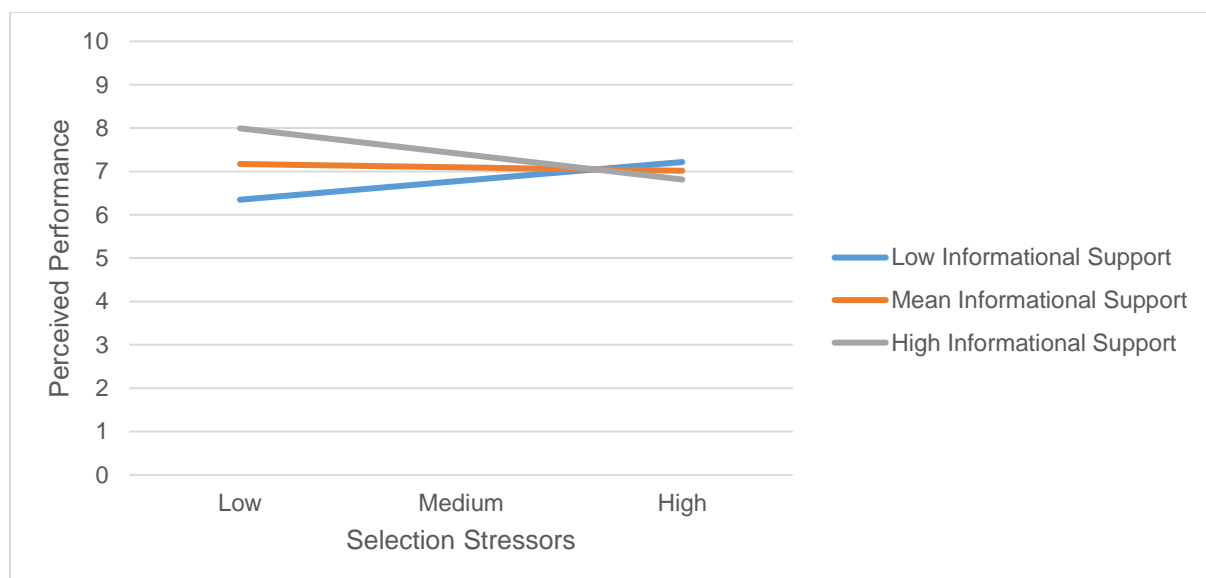


Figure 4. A plot of the interaction between selection stressors and perceived performance at low (1SD below the mean), moderate (mean), and high (1SD above the mean) levels of perceived informational support. Perceived performance is measured on a 0 (very poor) to 10 (excellent) scale.